

Practitioner's Docket No.: 789_076

**AFTER FINAL
PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Toshikazu HIROTA, Takao OHNISHI, Saichi
YAMADA, Kazunari YAMADA and Yukihisa
TAKEUCHI

Serial No.: 10/068,292

Group Art Unit: 1641

Filed: February 6, 2002

Examiner: Ann Y. Lam

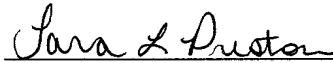
Conf. No.: 9651

For: BIOCHIP AND METHOD FOR PRODUCING THE SAME

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**CERTIFICATION OF EFS
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I hereby certify that this paper is being transmitted via EFS to the Patent
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Tara L. Preston

REQUEST FOR RECONSIDERATION

Sir:

In response to the Final Office Action mailed September 12, 2007, Applicants respectfully request reconsideration and withdrawal of the rejections of record based on the following arguments.

1. Claim 65 was rejected under §112, second paragraph on page 2 of the Office Action. This rejection is respectfully traversed.

In relevant part, claim 7 recites the following:

“one of said solution sample and said solution containing no capture
is supplied onto the other one of said solution sample and said

solution containing no capture while said other one of said solution sample and said solution containing no capture is in liquid form.”

For the Examiner’s reference, we will repeat the same phrase from claim 1 replacing the term “said solution sample” with A and the phrase “said solution containing no capture” with B. The result is as follows:

“one of A and B is supplied onto the other one of A and B while said other one of A and B is in liquid form.”

It should be understood from this phrase that there are two possible outcomes covered by independent claim 7. Following the claim language of independent claim 7, the first option is that A is supplied onto B while B is in liquid form. The other option is that B is supplied onto A while A is in liquid form.

Using the same meanings for A and B, claim 65 recites that the other one of A and B is B. Accordingly, claim 65 further limits the scope of claim 7 by asserting that the “one of” must be A, while the “other one of” must be B such that A is supplied onto B while B is in liquid form.

For at least the foregoing reasons, Applicants respectfully submit that claim 65 further limits independent claim 7 and is, therefore, a proper dependent claim which is consistent with claim 7. Accordingly, reconsideration and withdrawal of the present rejection are respectfully requested.

2. Claims 7, 8, 11, 14, 16-19, 21, 22, 26-32, 59, 64 and 65 were rejected under §103(a) over Brennan in view of Sluka. This rejection is respectfully traversed.

Please note that for the sake of clarity and consistency with the portion of the discussion above, the solution sample will be referred to as A, and the solution containing no capture will be referred to as B. Using these references, independent claim 7 recites a method for producing a biochip comprising the steps of, in relevant part, supplying a plurality of A, and supplying B in accordance with an ink-jet system separately from and in the same location as each of A. One of A and B is supplied onto the other one of A and B while the other one of A and B is in liquid form.

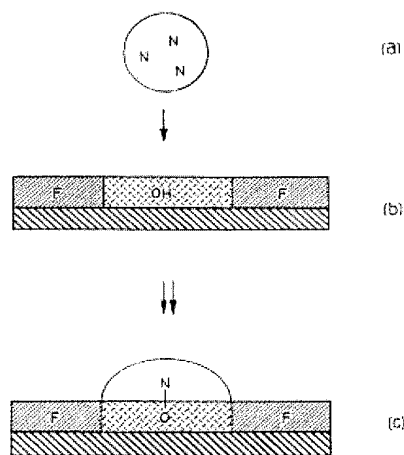
The Examiner is respectfully requested to note that an important aspect of the present invention is that the “other one” of A and B (the solution applied first to the planar base plate) is in liquid form when the second solution is applied. While Applicants do not acquiesce to any of the other Examiner’s arguments presented in the present Office Action, Applicants respectfully submit that this detail, in particular, has not been shown to exist in any of the prior art relied upon by the Examiner.

The Examiner’s assertion, on page 4, lines 1 and 2 of the present Office Action, that “the solution containing no capture is also in solution form because it is disclosed as having a surface tension, see column 7, lines 46-47” is incorrect and technically without merit. First, the Examiner is respectfully requested to note that claim 7 was amended in a previous Office Action to more clearly define that the solution is in “liquid form.” Second, the Examiner is respectfully requested to note that solid surfaces, as is disclosed in Brennan, have measurable surface tensions similar to surface tensions of liquids. In an effort to help the Examiner more fully understand this important point, Applicants offer the following.

As recited in the “INTRODUCTION” section of the literature reference attached in Appendix A, “how a solid is wetted by a liquid is measured by the surface tension of the liquid relative to the surface tension of the solid.” In the “THEORY” section of attached Appendix A, the reference recites that “for a liquid to wet the surface of a solid, the surface tension of the liquid must be lower than the solid surface tension.” As recited in the first paragraph of the literature reference attached in Appendix B, the reference recites that “the surface tension of a solid or liquid can be calculated on the basis of a polar or non-polar component with the help of the measured contact angle.” Appendix C, which is U.S. Patent No. 4,970,893, provides for a device which is specifically adapted to measure the surface tension of a solid.

Using the knowledge gained through Appendices A-C, the steps shown in Figs. 3(a)-3(c) of Brennan should now make more sense.

FIG. 3



As disclosed in column 7, lines 46-50, the hydroxyalkylsiloxane surface in the dots (shown in Fig. 3(b) with the letters “OH”) has a surface

tension of approximately $\gamma=47$, the fluoroxysilane surface (shown in Fig. 3(b) with the letter “F”) has a surface tension of $\gamma=18$, and the liquid to be applied (shown as droplet in Fig. 3(a)) has a surface tension of $\gamma=29$. As asserted above, for a liquid to wet the surface of a solid, the surface tension of the liquid must be lower than the surface tension of the solid.

Accordingly, the liquid droplet having a surface tension of $\gamma=29$ will only wet the solid having a surface tension of $\gamma=47$. Accordingly, as shown in Fig. 3 above, a droplet only wets the solid hydroxyalkylsiloxane dots having $\gamma=47$ whereas the droplet does not wet the solid fluoroxysilane surface having a surface tension of $\gamma=18$. There is no disclosure or suggestion within Brennan of having the solid surfaces shown in Fig. 3 and discussed in column 7, lines 45-50 to be in liquid form at the time the droplet is placed thereon.

Sluka, used only for its alleged disclosure of applying a solution B using an ink-jet device, fails to overcome the deficiencies of Brennan. Similar to Brennan, Sluka fails to disclose or suggest that a secondly applied solution is to be placed onto a firstly applied solution while the firstly applied solution is in liquid form.

For at least the foregoing reasons, the method for producing a biochip as recited in claim 7 would not have been obvious to one skilled in the art provided with the disclosures of Brennan and Sluka. Since claims 8, 11, 14, 16-19, 21, 22, 26-32, 59, 64 and 65 depend either directly or indirectly from claim 7, those claims are also believed to be allowable over the applied prior art. Accordingly, reconsideration and withdrawal of the present rejection are respectfully requested.

3. Claims 23 and 25 were rejected under §103(a) over Brennan and Sluka in view of Okamoto. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Okamoto does not overcome the deficiencies of Brennan and Sluka, and since claims 23 and 25 depend indirectly from claim 7, those claims are also believed to be allowable over the applied prior art.

4. Claims 12, 13 and 15 were rejected under §103(a) over Brennan and Sluka in view of Borrelli. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Borrelli does not overcome the deficiencies of Brennan and Sluka, and since claims 12, 13 and 15 depend indirectly from claim 7, those claims are also believed to be allowable over the applied prior art.

5. Claim 20 was rejected under §103(a) over Brennan and Sluka in view of Hammond. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Hammond does not overcome the deficiencies of Brennan and Sluka, and since claim 20 depends indirectly from claim 7, claim 20 is also believed to be allowable over the applied prior art.

6. Claim 24 was rejected under §103(a) over Brennan and Sluka in view of Dattagupta. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Dattagupta does not overcome the deficiencies of Brennan and Sluka, and since claim 24 depends indirectly from claim 7, claim 24 is also believed to be allowable over the applied prior art.

7. Claim 58 was rejected under §103(a) over Brennan and Sluka in view of Balint, Jr. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Balint, Jr. does not overcome the

deficiencies of Brennan and Sluka, and since claim 58 depends indirectly from claim 7, claim 58 is also believed to be allowable over the applied prior art.

8. Claim 60 was rejected under §103(a) over Brennan and Sluka in view of Sakamoto. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Sakamoto does not overcome the deficiencies of Brennan and Sluka, and since claim 60 depends indirectly from claim 7, claim 60 is also believed to be allowable over the applied prior art.

9. Claim 61 was rejected under §103(a) over Brennan and Sluka in view of Schwartz. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Schwartz does not overcome the deficiencies of Brennan and Sluka, and since claim 61 depends indirectly from claim 7, claim 61 is also believed to be allowable over the applied prior art.

10. Claim 62 was rejected under §103(a) over Brennan and Sluka in view of Wei. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Wei does not overcome the deficiencies of Brennan and Sluka, and since claim 62 depends indirectly from claim 7, claim 62 is also believed to be allowable over the applied prior art.

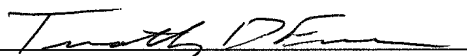
11. Claim 63 was rejected under §103(a) over Brennan and Sluka in view of Lopez. Applicants respectfully submit that the arguments submitted above distinguish claim 7 from Brennan. Since Lopez does not overcome the deficiencies of Brennan and Sluka, and since claim 63 depends indirectly from claim 7, claim 63 is also believed to be allowable over the applied prior art.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

November 5, 2007
Date


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SPB/TE/tlp

Attachments:

- Appendix A- print-out on "surface tension" (2 pgs.)
- Appendix B- webpage from www.oeg-messtechnik.de/english/3e6.htm (2 pgs.)
- Appendix C- U.S. Patent No. 4,970,893 (5 pgs.)

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